energized

Volume 8 March 2003 THE MONTHLY NEWSLETTER FOR ENERGY MANAGERS AND PUBLIC AFFAIRS OFFICERS Issue 3

Message to Energy Managers

Our featured SECNAV winner this month, MCAS Beaufort, is a shining example of how significant savings can be realized by upgrading systems. They targeted work areas, upgraded HVAC system control changes, as well as replaced housing HVAC units with geothermal heat pump systems.

The second of our two-part feature on weather forecasting describes in detail the Energy Conservation Forecasting Prog-ram available to all DON activities, and the savings potential.

Two proton exchange membrane fuel cells were installed at Naval Air Station Patuxent River, MD as part of a year-long test project. We'll keep you updated on the results.

And it is already time to register for Energy2003. Last year's conference was a big success, and DON attendees gained many useful ideas to take back to their bases. Sessions will include presentations on topics such as basics of energy management; distributed energy; facilities; policies, programs and partnerships; project financing; renewables, sustainable building design; technology; transportation; utilities; and water resource management. See page three for registration information.

2002 SECNAV Winner: Marine Corps Small Installation Category

It Pays to Upgrade: MCAS Beaufort

Marine Corps Air Station Beaufort, SC, is located in the heart of South Carolina's Lowcountry. Comprising 6,900 acres 70 miles southwest of Charleston, the Air Station is home to seven Marine Corps F/A-18 squadrons. The Fightertown family consists of more than 700 Marines and Sailors along with 600 civilian personnel.

In FY01, MCAS Beaufort initiated a project aimed at reducing shore facility energy consumption by 12%, and family housing by 30%. The shore facility project was accomplished by partnering with Pacific Northwest Laboratories to install a $2.6-million energy management and control system to set heating and cooling levels, control lighting, and manage peak loads. The system will save more than 34,000 MBtus annually, with an annual cost savings of $422,269. The system's computer-linked diagnostics are also expected to significantly lower maintenance costs.

One of 10 drilling rigs used to insert heat exchangers into the ground.

The Nuts and Bolts

First they targeted buildings that have a high-energy savings payback on HVAC system control changes. Most of these buildings were barracks and office areas that were not used all day. They added occupied/unoccupied system controls and temperature monitoring for both high and low limits. They also established a base-wide LAN for using the energy management system. This feature allows the Air Station to automatically control peak demand load shedding.

In addition to reducing overall energy consumption, this project has a tremendous

continued on page 3

DON Energy Awareness Website: Access the tools on the Navy Energy website for ideas, planning tips, and tools. Set your browser to <**http://energy.navy.mil**> and scroll down the left-hand column to the Awareness pick.

Navy Base Begins Fuel Cells Tests

In 2002, Naval Air Station Patuxent River, Maryland joined with Southern Maryland Electric Cooperative (SMECO) to install two proton exchange membrane (PEM) fuel cells at the station as part of a 12-month test project. Officials said a propane-powered system, located at the station's Natural Resources Office, provides electricity and heat for the building, while a second natural gas-fueled system, installed at a station residence known as Quarter Y, generates electricity and heats water.

"The [PEM] fuel cell demonstration project provides a unique opportunity for the Navy and SMECO to learn about this new technology," said NAVAIR Patuxent River public works officer. "The project not only promotes environmental and energy conservation but also energy security by furthering the application of field-reliable, off-grid systems." The fuel cells will be maintained by SMECO. The utility originally approached Navy officials at the station after receiving a study grant from the U.S. Army Corps of Engineers.

New Power Protection Training School

Schweitzer Engineering Laboratories (SEL) of Pullman, WA, a supplier of electric power system protection, monitoring, control, and automation products and systems, has created a professional school to provide power systems engineers and managers with continuing education on the latest advancements in power system protection and integration.

The curriculum spans electric power systems theory, concepts, technology, and practical applications. Specific training categories include SEL product applications and power system protection fundamentals in general, and curriculum is not exclusively dedicated to SEL products, the company says. For locations, schedule, and description courses, call (509) 332-1890 or visit www. selinc.com/selumain.htm.

Forecast Savings

(Second of Two Parts)

Last month, we introduced you to the Naval Atlantic Meteorology and Oceanography Center's Energy Conservation Forecasting Program (NAVLANTMETOCCEN ECFP). ECFP issues long-range temperature forecasts and heating and cooling recommendations to Navy shore facilities and can save you considerable energy this spring at no cost. The program's primary customers are energy managers and public works officers.

ECFP Tailored Service

All of ECFP's products are specific, point forecasts tailored to the individual facility. In the Washington D.C. area, for example, ECFP provides unique forecasts to nine different sites. Each product has been developed to give energy managers necessary information in terms they can understand and use. The ECFP team develops close working relationships with each customer, an approach that has proven successful through the years. Customers with active personal liaisons are more effective at utilizing ECFP products, and are thereby able to more efficiently operate and manage their energy programs. These customers consistently achieve higher energy reduction rates.

How Skillful are ECFP Forecasts?

It is no secret that forecasting the weather beyond five days is a challenging business for even the best forecasters. Weather, however, is a dominant factor in daily energy usage and even a small improvement over typical climatology can yield impressive savings. Historically, ECFP daily temperature forecasts over the ten-day forecast period have shown a 24% improvement over regular forecasting.

Naval Atlantic Meteorology and Oceanography Center

More important from a customer standpoint is the accuracy of heating recommendations. "Heat on" recommendations made too late, or "heat off" recommendations made too early exact a price in money, energy, and comfort. ECFP has shown considerable skill over the climatological "turn on/off" method. For the 2001/2002 heating season, ECFP made "heat on" recommendations to 63 sites and "heat off" recommendations to 51 sites.

Overall, ECFP heat activation/deactivation saved these sites over 64 weeks in heating costs during this period. For the energy managers who utilized this service, this resulted in individual site savings of between

continued on page 3

FEMP Helps You Boost Energy Awareness

Any energy manager or energy team that has not made a lot of progress in conserving their activities' energy use has a new resource to help them get on the ball. The Federal Energy Management Program (FEMP) has published *Creating an Energy Awareness Program*, a free handbook for Federal energy managers. The handbook is also useful for new energy managers and team members. To order, call (800)363-3732 or visit www.eren.doe.gov/femp.

MCAS Beaufort, from page 1

impact on maintenance costs. Now technicians can monitor and program controls for multiple buildings from a central location; evaluate operational conditions from a site-wide perspective; and use automated HVAC control diagnostics and link through the computer into preventative maintenance programs and information.

Forty-nine buildings are now being managed at a central location. Incoming power usage is monitored and load profiles are evaluated for load shedding schemes.

Housing Upgrades = More Savings

MCAS Beaufort didn't stop at office building upgrades. They performed an Energy Efficiency Ratio analysis, and determined that their existing HVAC units in their family housing buildings were performing on average 33% below factory performance data.

So they initiated a housing geothermal project to not only reduce energy consumption, but also to increase tenant comfort, reduce labor, correct air quality problems, and mitigate potential carbon monoxide problems.

The result is a decrease in energy use by 30% in family housing by replacing old HVAC and hot water generating equipment with geothermal heat pump systems that generate heating, cooling and hot water. This $11 million project also has significant environmental benefits: South Carolina Electric and Gas estimates the annual reduction of CO_2 emissions to be 11.2 tons. And the noise pollution from the condensing units has been eliminated. Now the most noise comes from birds singing and children playing.

Paying It Off

MCAS Beaufort's annual energy savings are expected to be more than 78,000 MBtus, and almost $880,000. The geothermal project will pay for itself in 6.1 years. Headquarters, Marine Corps funded $6 million of the project, and $1.1 million was funded by a "10% Buy Down Money" provided by NFESC as part of the Department of Navy's program to promote geothermal heat pump technology.

In addition to earning a FY01 SECNAV award, The Department of Energy recently named the MCAS Beaufort Housing project a Federal Award Showcase for FY02. These are well-deserved accolades for a host of energy savings by MCAS Beaufort.

Calling All Navy Energy Staff!

Last year's Energy Conference was an outstanding event and DON wants to encourage all of our energy folks to attend in August of this year. You have until 02 June to register for Energy2003. Here's what to do:

1. Go to the web site: www.energy2003.ee.doe.gov, read about the conference and get registration information. The discounted rate is $420.
2. Write in "Navy Group Rate" on your registration form.
3. Submit by 2 June 2003.
4. If you pay by credit card you won't be charged until 20 days prior to the conference.
5. If you're interested, the Navy will pay for offered Tours #1 or #2.
6. The Wyndham Palace Resort is near Disney World, a 20-minute shuttle ride from the Orlando International Airport ($16.00).

Forecast Savings, from page 2

three and nine weeks of heating costs.

The ECFP energy usage forecasting service has a demonstrated record of precision forecasting. During the summer 2001 through summer 2002, ECFP provided monthly utility usage forecasts for 15 sites. Average error in these forecasts was less than 1%, with an error standard deviation of ± 13%.

How Much Can You Save?

Individual savings by ECFP customers are dependent on a number of factors, not the least of which is the weather. A milder heating season will result in fewer heating days and a subsequent reduction in energy consumption. More severe heating seasons will result in more heating days and increased energy consumption. For customers who are committed to conservation and actively use ECFP products, however, savings can even be achieved during these more severe seasons.

Over the life of the program, ECFP has documented $72 million in savings. This amounts to only a fraction of ECFP's customers responding to the program's routine annual survey. Analysis indicates, however, that on average small facilities may expect to achieve $10,000 to $50,000 in savings per year, medium facilities $100,000 to $300,000 per year, large facilities $300,000 to $600,000 per year and large industrial sites $500,000 to several million dollars per year.

ECFP's considerable experience in long-range energy forecasting, demonstrated skill, and commitment to quality customer service has proven to be a valuable asset to facility Energy Managers during the program's 19-year history. With no cost to the customer, the suite of ECFP services can significantly assist the facility Energy Manager in reaching their required energy conservation goals.

To discuss your requirements, schedule a site visit or request any of the ECFP services, contact the ECFP forecasters at (commercial) (757) 445-2046 / 4546 / 2376 or 1131; (DSN) 564-2046 / 4546 / 2376 or 1131; or email to lrf@nlmoc.navy.mil.

Check It Out

Energy Meeting Highlights

The World Energy Engineering Congress, 12-14 November 2003, Atlanta, Georgia. A multi-track conference with over 200 speakers, state-of-the-art technologies and strategies for energy efficiency improvement. Reports on successful projects and technology applications, including Energy Management in Federal Facilities. Also a GeoExchange conference track by the Geothermal Heat Pump Consortium and the International Ground Source Heat Pump Association. Presented by The Association of Energy Engineers. Cost: $795. Info: (770)447-5083 or email info@aeecenter.org.

5th Annual SolWest Renewable Energy Fair, 25-27 July 2003, John Day, OR. Over 40 free workshops on both off-grid and grid-intertied renewable energy and independent/sustainable living topics. Fifty exhibitors show tools for energy and lifestyle self-reliance. Keynote speakers emphasize the limitless possibilities for renewable energy. Organized by Eastern Oregon Renewable Energies Non-profit, Inc. Cost: $5. Info: Jennifer Barker (541)575-3633.

14th National Energy Services Conference, 08-10 December 2003, New Orleans, LA. An integrated view of energy services and energy efficiency. Features all aspects of marketing, marketing management and energy efficiency including; channel development, market research, segmentation, pricing, distribution/delivery options, promotion/communication, new product development, technical applications. Organized by Association of Energy Services Professionals International. Cost: $995. Info: Elliot Boardman (561)575-2334

energized

Watts News?

We want to hear from you.

Tell us about the energy initiatives you're working on, the problems you encounter, and the solutions you discover.

Submit article ideas, comments, or questions to:
Dean Ryan Consultants & Designers, Inc.
1733 King Street, Third Floor
Alexandria, VA 22314
Phone: (703)548-8115
Fax: 703.548-6855
e-mail: sarahb@deanryan.com

Be sure to include your name and commercial phone number.

energized is a publication sponsored by the Energy and Utilities Management Division, Naval Facilities Engineering Command. The views and opinions expressed in this publication are not necessarily those of the Department of the Navy.

Printed by the Naval Facilities Engineering Service Center

NAVY / MARINE CORPS ENERGY EFFICIENCY

Department of the Navy
Commanding Officer
NFESC
Code: ESC 22
1100 23rd Avenue
Port Hueneme, CA 93043-4370